

**REMARKS**

Claims 1-11 and 13-30 are now in this application. Claims 1-5 and 11-26 are rejected. Claims 6-10 and 27 are objected to. Claim 12 is cancelled herein.

Claims 1-11 and 13-27 are amended herein to clarify the invention, to broaden language as deemed appropriate and to address matters of form unrelated to substantive patentability issues. For example, reference numerals are removed as the elements of the claims are not considered limited to specific corresponding structures in the drawings. Other formal matters are attended to that were not addressed by the Examiner and accordingly are considered unrelated to substantive patentability issues.

The Examiner objects to the drawings under 37 C.F.R. § 1.84(p)(5) for having reference designators not referred to in the specification. The specification is amended to correct the informalities. Reconsideration of the objection to the drawings and withdrawal thereof are earnestly solicited.

Claim 5 is rejected as indefinite under 35 U.S.C. § 112, second paragraph, for failing to particularly point out and distinctly claim the subject matter of the invention as a result of an informality stated in the Office Action. The claim is amended to remove or correct the informality noted in the Office Action.

Therefore, reconsideration of the rejection of the claim and its allowance are earnestly requested.

Claims 1-4, 11-15, 17/15 and 18-26 are rejected as obvious over the JP '612 reference in view of the McKinlay '449 reference under 35 U.S.C. §103(a). Claim 5 is rejected as obvious over the JP '612 reference in view of the McKinlay '449 reference and further in view of the Wolton reference under 35 U.S.C. §103(a). Claim 16 and 17/16 is rejected as obvious over the JP '612 reference in view of the McKinlay '449 reference and further in view of the Richardson reference under 35 U.S.C. §103(a). The applicant herein respectfully traverses this rejection. For a rejection under 35 U.S.C. §103(a) to be sustained, the differences between the features of the combined references and the present invention must be obvious to one skilled in the art.

It is respectfully submitted that a *prima facie* case of obviousness could not be established in rejection of the amended claims. "To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the

claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on the applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)." MPEP §706.02(j) "Contents of a 35 U.S.C. §103 Rejection".

With regard to independent claims 1, 7, 11, and 14, each of the claim include the feature that the ends of the spiral for of the inclined surface have a tier face extending axially and a flat recessed surface interposed between the ends. This configuration is not shown in any of the references. Furthermore, it is recited that the spiral form circles around substantially once. In the JP '612 reference a spiral surface has ends connected by a single axially extended surface and does not have a flat recess surface extending radially interposed between the ends of the spirals. In the McKinlay '449 reference, a series of inclined surfaces 28 have ends interconnected by a second series of inclined surfaces 36. Thus, the references do not teach the noted claimed structure.

Independent claims 15, 18, and 19 include the feature of "ends of said inclined surface having sequentially a first plane surface in a radial direction, a tier face in an axial direction and a second plane surface in the radial direction interposed therebetween." In view of the above noted constructions of the cited references, it is clear that this claimed feature is not presented.

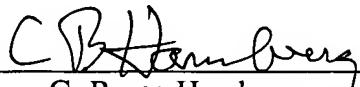
Thus, it is respectfully submitted that the rejected claims are not obvious in view of the cited references for the reasons stated above. Reconsideration of the rejections of the claims and their allowance are respectfully requested.

Claims 6, 7 and 27 are objected to as being dependent from rejected base claims. The Examiner indicates that the claims contain allowable subject matter and would be allowed if put in independent form incorporating the limitations of the base and intervening claims. The claims are amended in accordance with the Examiner's suggestion with minor revisions to clarify the claimed subject matter. Reconsideration of the objection and allowance of the claims are respectfully requested.

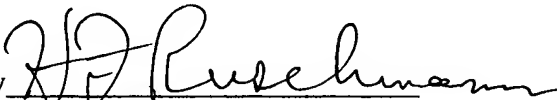
Three further independent claim(s) in excess of three is/are added. Accordingly, please charge the fee of \$258.00 to Deposit Account No. 10-1250.

In light of the foregoing, the application is now believed to be in proper form for allowance of all claims and notice to that effect is earnestly solicited. Please charge any deficiency or credit any overpayment to Deposit Account No. 10-1250.

Respectfully submitted,  
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